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ABSTRACT

The current status and apparent trends of local area networks (LANs) in school districts are explored in this short report. Results of a 1987-88 Quality Education Data survey are cited, indicating that 64% of 173 of the largest school districts in the country were already networking and 36% intended to be networking by 1990. The advantages of networks are briefly summarized, and a description of how LANs work is provided. Availability of network software in the recent past and at present is discussed, as is the response of software publishers to the increased demand for network software. Two case studies are presented. The first profiles the Island Park School District in New York, where three LAN laboratories are used for: (1) teaching basic skills to kindergarten through third grade pupils; (2) instructing fourth through eighth grade students in skills reinforcement and word processing; and (3) offering creative applications in the library. The second case study reports on progress made in the 28,000-student Plano Texas School District, whose goal is to have a network that will channel everything a student does into one core electronic gradebook by 1992. Eight tips for buying a LAN are listed, together with six sources to consult for further information. (SD)

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USE OF LOCAL AREA NETWORKS IN SCHOOLS

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Use of Local Area Networks in Schools

by Fran Reinhold

> "The days of the standalone computer are drawing to a close. Networks will dominate the educational technology scene into the 1990s."

So goes the prevailing wisdom in many educational technology circles throughout the country. And, judging from the numbers, that wisdom just may be right. According to Quality Education Data's 1987-88 survey of the 173 largest school districts, 64% were networking, and 36% of those not networking planned to use the technology by 1990 (1988, p. 46).

The Advantage of Networks

Why are networked computers making greater inroads into schools than ever before? The answers are many and varied, but most educators agree that networks offer them the following advantages:

- They eliminate the handling of floppy disks.
- They cut down on computer printouts, making it possible for students' work to be viewed on-screen, sent to teachers' workstations, or even channeled into "electronic gradebooks."
- They support management programs that give teachers detailed reports on a student's progress, even pointing out areas where improvement is necessary.
- They allow several students in a class to use one program at the same time, or to work on different programs or different parts of the same program at the same time.
- They eliminate the need to buy several copies of one software program, thereby often reducing costs.

LANs: How They Work

A local area network, or LAN, is a data communications network, covering a limited geographical area, like a school. LANs can connect a large number of electronic devices, including computers, dumb terminals, tape drives, modems, file servers, and various printers.

Most LANs in schools, especially for curriculum use at the K-8 level, consist of a roomful of computers connected to a file server, such as a Mac Plus with a hard disk that acts as a large storage center for all software. The file server also controls the flow of information, such as software, messages, or homework, between central storage centers and each computer, and also between computers and printers.

Connecting and communicating is made possible by (1) a network interface card at each computer, file server, etc., (2) a cable connection between these components, (3) a network controller, and (4) a network-access method.

Availability of Network Software

In the past, one drawback to networking was the lack of software to run on the network. Today, almost all the major software companies offer network software, though not all of their programs are networkable. Furthermore, site licenses for some programs, like word processors, are not cheaper than individual copies because the company charges a network and a per user fee. Site licenses themselves still present some problems for educators who shy away from what they consider to be confusing legal or technical details. But early lamentations over software inadequacy are dying down as publishers scurry to satisfy the voracious appetite for networkable software.

How Two School Districts Are Using LANs

Island Park School District, Nassau County, New York has three labs. One is a full lab for students in grades K-3, designed to concentrate on reinforcing basic skills. In the upper school, there are another two labs. One is for grades 4-8 and focuses on teaching and skills reinforcement, as well as keyboarding and word processing. The other is in the library and is open for "creative uses." All labs have 50 Apple IIe's or GS's and a Corvus network. According to Dr. Erich J. Stegmeier, assistant superintendent, "We couldn't function without the networks. It would take 1,000 diskettes to handle all our software and disk needs."

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Plano School District, Plano, Texas is a large district (28,000 students) emcompassing 21 elementary schools. Each school has two labs, and each lab has 30 computers and one file server. Bill Adkins, director of instructional technology, says "We began networking in order to pull student information from each of the student stations and communicate from machine to machine. Our goal is to have, by 1992, a network that will channel everything a student does into one core electronic gradebook." Another goal of the Plano program is to tie courseware into curriculum objectives and make it possible to automatically track student progress towards these objectives.

Eight Tips for Buying a Network

1. **Ease of use.** Teachers and students have to be able to send and receive software, messages and schoolwork easily. Management programs should be easy to use.

2. **Compatibility.** Most computer manufacturers now produce their own networks, so compatibility shouldn't be a problem. Increasingly, however, other companies are selling LANs, mostly for IBMs or clones. These might be cheaper or more appropriate.

3. **RAM use.** How much random access memory does the network need for each computer? With the minimum amount, you should still be able to run all your essential programs and more.

4. **Size, distance, and expandibility.** How many computers can the network accommodate, and can it be expanded? Although it may seem unlikely now, you may want to add more computers in the future. In addition, discuss closely with the manufacturer how you intend to use the network. Placing computers far apart can affect the network's efficiency.

5. **Security.** If you need security, how does it work? Does the network provide the security you need while still allowing you to run the programs you need?

6. **Maintenance.** Unfortunately, too many districts leave maintenance to their computer coordinators or even teachers. Ask the manufacturer about management contracts. It may be cheaper to train a few technicians to service networks.

7. **Bandwidth, speed, throughput; interfaces and gateways.** These are technical words which apply to the kinds of information you plan to send (text, pictures, graphs) over the network. Have the manufacturer demonstrate how well the network handles them.

8. **Ease of installation.** Installation might come with the package, or it may be easy enough to do yourself. Some LANs, however, require extensive wiring or software installation. If you're not prepared to manage this, pay the installation charge.

For More Information

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